

# PATENT SPECIFICATION

(11) 1374 937

1374937

- (21) Application No. 19667/73 (22) Filed 25 April 1973  
 (44) Complete Specification published 20 Nov. 1974  
 (51) International Classification A47J 35/00  
 (52) Index at acceptance A4D X  
 (72) Inventor YOTARO TSUTSUMI



## (54) PACKING BAGS FOR FOODSTUFFS AND PACKAGE OF FOODSTUFFS

(71) We, TOYO SEIKAN KAISHA, LTD, a joint-stock company of Japan, of 3-1 Uchisaiwai-Cho 1-Chome, Chiyoda-Ku, Tokyo-To, Japan, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a bag for foodstuff, and a package of foodstuff including a bag, capable of being heated while containing the foodstuff.

A package of foodstuff which can be heated directly without taking the foodstuff out of the package is known. However, with the known package, the foodstuff is heated by dipping the package in hot water, so that it is necessary to boil water to heat the package.

To obviate this disadvantage, it has been proposed to directly heat a package of foodstuff, such as bacon or ham, using a suitable electric heating appliance such as an electric toaster. Although an electric toaster can heat or cook the packed foodstuff in a short time of the order of 1 to 5 minutes, because the heating temperature of the toaster is high, if the bag in which the foodstuff is enclosed is made of aluminium foils whose peripheries are hermetically sealed with a polyolefin bonding agent, as are the bags adapted to be warmed in hot water, the bonding agent will melt or in an extreme case will be charred. For this reason, it has been impossible to heat a package of foodstuff with an electric toaster.

Furthermore, when a sealed package of foodstuff is heated with a heating device such as an electric toaster, the air and foodstuff sealed in the bag undergo thermal expansion so that the bag may often explode. For this reason, it is necessary to break the seal of bag made by cutting off one side edge, for example, the upper edge.

According to this invention, there is provided a bag for foodstuff capable of being heated while containing the foodstuff, comprising

at least two superposed layers of aluminium foil hermetically bonded together along the peripheries of said layers by a bonding agent comprising thermosetting resin, a slit for use in filling the bag with the foodstuff provided in a portion thereof which is to be removed when the bag is to be heated and a sealing member adapted to be heat sealed to the bag for closing the slit.

According to this invention, there is also provided a package of foodstuff comprising a bag capable of being heated while containing the foodstuff and foodstuff hermetically sealed in the bag, the bag including at least two superposed layers of aluminium foil hermetically bonded together along the peripheries of the layers by a bonding agent comprising thermosetting resin, a slit for filling the bag with the foodstuff provided in a portion thereof which is to be removed when the bag is to be heated, and a sealing member heat sealed to the bag and closing the slit.

The invention will be more fully understood from the following description of an embodiment thereof, given by way of example only, with reference to the accompanying drawing, in which:

Figure 1 is a plan view of an embodiment of a package of foodstuff according to the invention;

Figure 2 is a sectional view of the package of Figure 1 taken on the line II—II;

Figure 3 is a plan view of the bag used in making the package of Figure 1;

Figure 4 is a plan view of a sealing tape for use in making the package of Figure 1;

Figure 5 is a longitudinal section of the sealing tape of Figure 4 taken on line V—V, and

Figure 6 is a perspective view showing the manner of heating an opened package as shown in Figure 1 with an electric heater.

Referring now to the accompanying drawing, the bag 1 comprises a pair of superposed rectangular aluminium foils 2, the peripheries of the foils are hermetically sealed together with a bonding agent 3 of a thermosetting

[Price 25p]

resin, such as epoxy resin, silicon resin, urethane resin or alkyd resin. Near the upper edge of the bag 1 there is formed an elongated slit 4 for use in filling the bag with a foodstuff 5.

After filling the bag with the foodstuff 5, such as sliced bacon or ham, a sealing tape 8, comprising a lamination of aluminium foil 6 and a nylon layer 7, is applied to cover the slit 4 and then heated and pressed against the bag to seal the slit 4.

The thickness of the filled package is made to be nearly equal to the thickness of a slice of bread so that the package can be inserted in an electric toaster. Notches 9 or indicia are provided on both sides of the bag at a level slightly below the sealing tape 8.

As shown in Figure 6, the upper portion of the bag 1 above the notches 9 is torn off to remove the portion including the sealing tape 8 to expose the interior thereof to the atmosphere. Then the lower portion of the bag containing the foodstuff is inserted in the toaster 10 so that it is heated in the same manner as bread is toasted.

As above described the peripheries of the aluminium foils are hermetically sealed together by a bonding agent of thermosetting resin and the upper portion of the bag including sealing tape or member used to seal the slit 4 is removed before the package is heated so that the sealing member may be made of a material having a low melting point. Thus, the above described package can be heated very easily with an ordinary household electric appliance such as a toaster. Although the sealing operation for the periphery of the bag using a bonding agent of thermosetting resin is more difficult than a sealing operation using a thermoplastic resin as the bonding agent, because the sealing operation is performed in a factory for manufacturing the bags and because in the foodstuff factory it is only necessary to apply the sealing tapes to the bags, it is possible to manufacture bags and packages of uniform quality on a large scale.

Instead of using a single layer of aluminium foil for each side of the bag, it is possible to use two layers of aluminium foils which are bonded together by an intermediate layer of synthetic resin. Alternatively, heat resistant resin coatings may be applied to the inner and outer surfaces of an aluminium foil. Such a composite structure increases the mechanical strength of the bag and package.

It should be understood that the position

and configuration of the filling slit and the configuration of the sealing member therefor may be suitably varied depending upon the configuration of the bag and foodstuff. Any sealing member that can be heat sealed to the bag to close its filling slit or opening may be used. However, it is preferable to use a sealing member having a lining 7 of a material, such as "nylon 12", which can be strongly bonded to the metal surface and which is applied to the inner surface of an aluminium foil 6.

#### WHAT WE CLAIM IS:—

1. A bag for foodstuff capable of being heated while containing the foodstuff, comprising at least two superposed layers of aluminium foil hermetically bonded together along the peripheries of said layers by a bonding agent comprising thermosetting resin, a slit for use in filling the bag with the foodstuff provided in a portion thereof which is to be removed when the bag is to be heated and a sealing member adapted to be heat sealed to the bag for closing the slit.

2. A bag according to claim 1 wherein the slit is provided near the upper edge of the bag and tear off indicia are provided on both sides of said bag at a level slightly below the slit.

3. A bag according to claim 1 wherein the sealing member comprises an aluminium foil layer with a lining of nylon.

4. A package of foodstuff comprising a bag capable of being heated while containing the foodstuff and foodstuff hermetically sealed in the bag, the bag including at least two superposed layers of aluminium foil hermetically bonded together along the peripheries of the layers by a bonding agent comprising thermosetting resin, a slit for filling the bag with the foodstuff provided in a portion thereof which is to be removed when the bag is to be heated, and a sealing member heat sealed to the bag and closing the slit.

5. A packaging bag substantially as herein described with reference to the accompanying drawing.

6. A package of foodstuff substantially as herein described with reference to the accompanying drawings.

A. A. THORNTON & CO.

Chartered Patent Agents,  
Northumberland House,  
303—306 High Holborn,  
London, W.C.1.

FIG-1.

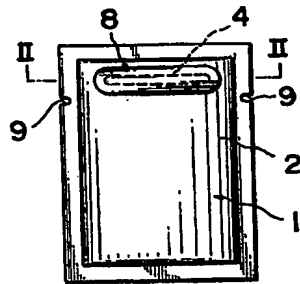


FIG-2.

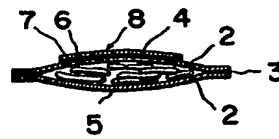


FIG-4.

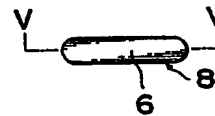


FIG-3.

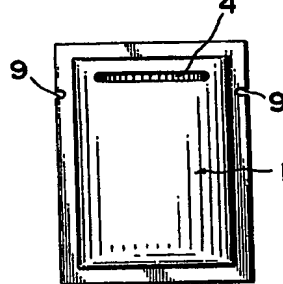


FIG-5.

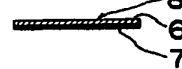


FIG-6.

